

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/632,960	NAGAHASHI ET AL.
	Examiner	Art Unit

Saqib J. Siddiqui      2138

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 04/03/06.
2.  The allowed claim(s) is/are 1.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some\*    c)  None    of the:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 04/03/06
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

**GUY LAMARRE**  
**PRIMARY EXAMINER**

## DETAILED ACTION

Applicant's response was received and entered April 03, 2006.

- Claim 1 is allowed.

### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance: The prior art of record does not teach the following limitations:

The present invention includes an accelerated test method for evaluating an endurance characteristic of a ferroelectric memory device. The claimed invention recited features such as: "deriving an acceleration factor (K) required to evaluate endurance characteristic of a ferroelectric memory device by using a following expression:

$$\text{LogK} = A(1/V_1 - 1/V_2) + B(1/V_1T_1 - 1/V_2T_2) \quad (1)$$

further comprising determining the number (Lc) of occurrences of polarization inversion when a remanence of the ferroelectric film reaches a specified decrease rate at each of a plurality of polarization inversion voltages at a plurality of temperatures; determining a constant ( $\alpha$ ) at a specified temperature by using:

$$\text{LogLc} = C + \alpha/V \quad (2)$$

And determining A and B by using a following expression:

$$\alpha = A + B/T \quad (3).$$

The prior arts of record (Shimada et al. US Pat no. 5,920,574) teaches calculating an acceleration factor using activation energy and the following expression:  $K = \exp(E\alpha/kx(1/T_1-1/T_2))$ . The calculation of the prior art's acceleration factor depends on activation energy, which has no connection to voltage. Further, the prior art does not

teach calculating the acceleration factor where it depends on constants A and B, which are further dependent on number (Lc) of occurrences of polarization inversion when a remanence of the ferroelectric film reaches a specified decrease rate. Further since the prior art does not teach number (Lc) of occurrences of polarization inversion and the constants A, B,  $\alpha$  or C it does not teach the calculation of these factors using equations

$$\log Lc = C + \alpha/V \quad \& \quad \alpha = A + B/T.$$

Hence, the prior arts of record fail to anticipate or render obvious the claimed inventions. Thus claim 1 is allowable over the prior arts of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saqib J. Siddiqui whose telephone number is (571) 272-6553. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decay can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Saqib Siddiqui  
Art Unit 2138  
05/05/2006

  
GUY LAMARRE  
PRIMARY EXAMINER